What is claimed is:

1. A self-supporting conductive polymer film having distributed therein an electrically conductive polymeric composition comprising linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid.

2. The self-supporting conductive polymer film of claim 1 wherein said film has a minimum tensile strength of at least 21 MPa and an elongation-to-break of at least 6%.

3. The self-supporting conductive polymer film of claim 1 having a surface resistivity of less than about 10^{10} ohms per square.

4. The self-supporting conductive polymer film of claim 1 having a surface resistivity in the range of from about 10^2 ohms per square to about 10^{10} ohms per square.

5. The self-supporting conductive polymer film of claim 1 wherein said polymer film is formed from a liquid dispersion of thermoplastic polymer having distributed therein an electrically conductive polymer composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid and coalesced.

6. The self-supporting conductive polymer film of claim 5 wherein said polymer film is fabricated from said liquid dispersion at a processing temperature of less than about 225°C.

7. The self-supporting conductive polymer film of claim 5 wherein said polymer film is cast from said liquid dispersion.

8. The self-supporting conductive polymer film of claim 5 wherein said film is extruded from said liquid dispersion.

9. The self-supporting conductive polymer film of claim 1 wherein said polymer is melt extrudable.

10. The self-supporting conductive polymer film of claim 9 wherein said polymer film is formed by extruding molten polymer having distributed therein an electrically conductive polymer composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid at a temperature at less than 225°C.

11. The self-supporting conductive polymer film of claim 1 wherein said film is flame treated.

12. The self-supporting conductive polymer film of claim 1 wherein said polymer is a fluoropolymer.

13. The self-supporting conductive polymer film of claim 12 wherein said film is flame treated.

14. The self-supporting conductive polymer film of claim 12 wherein said fluoropolymer is selected from the group consisting of polymers and copolymers of vinylidene fluoride, polymers and copolymers of vinyl fluoride and blends of polymers and copolymers of vinylidene fluoride with acrylic polymers.

15. The self-supporting conductive polymer film of claim 1 wherein said electrically conductive composition further contains metal particles.

16. The self-supporting conductive polymer film of claim 15 wherein said metal particles are aluminum.

17. The self-supporting conductive polymer film of claim 5 wherein said film is formed from a liquid dispersion of fluoropolymer and said electrically conductive composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid in liquid dispersant.

18. The self-supporting conductive polymer film of claim 17 wherein said liquid dispersant is selected from the group consisting of propylene carbonate, N-methyl pyrrolidone, γ-butyrolactone, sulfolane, and dimethyl acetamide.

19. The self-supporting conductive polymer film of claim 1 wherein said polymer film is cast from a mixture of a solution of fluoropolymer in combination with a dispersion of said electrically conductive composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid.

20. The self-supporting conductive polymer film of claim 1 wherein said linear conjugated π-electron systems comprise repeating monomer units of aniline, thiophene, pyrrole, or phenyl mercaptan, wherein said repeating monomer units of aniline, thiophene, pyrrole, or

phenyl mercaptan are optionally ring-substituted with one or more straight or branched alkyl, alkoxy, or alkoxyalkyl groups.

21. The self-supporting conductive polymer film of claim 1 wherein said linear conjugated π-electron systems are polyanilines.

22. The self-supporting conductive polymer film of claim 1 wherein said linear conjugated π-electron systems are grafted to said residues.

23. The self-supporting conductive polymer film of claim 21 wherein said polyanilines are grafted to residues of sulfonated lignin.

24. The self-supporting conductive polymer film of claim 1 containing from about 10 to about 40 weight % of said electrically conductive composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid.

25. The self-supporting conductive polymer film of claim 1 containing from about 10 to about 35 weight % of said electrically conductive composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid.

26. The self-supporting conductive polymer film of claim 1 containing from about 15 to about 25 weight % of said electrically conductive composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid.

27. A process for producing self-supporting conductive polymer film comprising:

preparing a coalescible liquid dispersion of polymer and an electrically conductive polymer composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid,

casting said liquid dispersion onto a support to form a conductive polymer film,

drying and coalescing said conductive polymer film while in contact with the support.

28. The process of claim 27 further comprising removing said coalesced conductive polymer film from said support.

29. The process of claim 28 further comprising flame treating said coalesced conductive polymer film.

30. The process of claim 27 wherein said coalescible liquid dispersion of polymer is a dispersion of fluoropolymer.

31. The process of claim 27 wherein said self-supporting conductive polymer film is fabrciated at a temperature of less than about 225°C.

32. The process of claim 27 wherein said liquid dispersion further comprises metal particles.

33. The process of claim 32 wherein said metal particles are alumnium.

34. A process for producing self-supporting conductive polymer film comprising:

preparing a coalescible liquid dispersion of fluoropolymer and an electrically conductive composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid,

extruding said liquid dispersion into an extrudate, and

applying heat to said extrudate to volatize said liquid and form a coalesced self-supporting conductive polymer film.

35. The process of claim 34 wherein said self-supporting conductive polymer film is fabricated at a temperature of less than about 225°C.

36. The process of claim 34 wherein said coalesced self-supporting conductive polymer film is stretched to produce oriented film.

37. The process of claim 34 wherein said liquid dispersion further comprises metal particles.

38. The process of claim 37 wherein said metal particles are alumnium.

39. A package formed from a heat sealable self-supporting conductive polymer film having distributed therein a electrically conductive composition containing linearly conjugated π-electron systems and residues of sulfonated lignin or a sulfonated polyflavonoid.

40. A substrate having adhered to it said conductive polymer film of claim 1.

41. The substrate of claim 40 wherein said conductive polymer film is flame treated.